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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/568,771

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Philippe-Luc Bres

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EXAMINER

HINDENLANG, ALISON L

ART UNIT

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/568,771	<b>Applicant(s)</b> BRES ET AL.	
	<b>Examiner</b> ALISON HINDENLANG	<b>Art Unit</b> 1791	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 March 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-15, 17-24 is/are pending in the application.
- 4a) Of the above claim(s) 1-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 15 and 17-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

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## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 18 is objected to because of the following informalities: Claim 18 is presented twice. Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 15, and 17-24 rejected under 35 U.S.C. 102(b) as being anticipated by Carlier (US 6271272) (already of record).
3. With respect to claim 15, Carlier teaches:

Pre-expanded beads having a bulk density chosen from a range of from 40 to 190 g/l ("before molding, the expanded beads generally have a bulk density of 7 to 50 kg/m<sup>3</sup>", column 11, lines 38-39) and containing by weight:

(a) 100 parts of a polymer of styrene, ("100 parts by weight of the styrene polymer", column 11, lines 30-31)

(b) from 0.5 to less than 3.0 parts of at least one blowing agent and ("from 0.5 to 6 parts by weight of the blowing agent", column 11, lines 31-32)

(c) from 0 to 0.4 part of at least one plasticising agent, ("from 0 to 1.0 part by weight of the nucleating agent", column 11, line 36)

wherein the pre-expanded beads are expandable and in particular capable of subsequent expansion without the addition of a fresh quantity of blowing agent. ("materials obtained ... from the expanded beads mentioned above, may be expanded moulded parts of any geometrical shape and of any volume", column 11, lines 40-43)

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4. With respect to claim 17, Carlier further teaches that “the weight-average molecular mass, Mw, of the styrene polymer generally lies between 150,000 and 300,000” (column 5, lines 23-24).
5. With respect to claim 18, Carlier further teaches that a mixture of n-pentane and iso-pentane maybe used as the blowing agent (column 5, lines 31-35).
6. With respect to claims 19 and 20, Carlier teaches “from 0.5 to 6 parts by weight of the blowing agent” (column 11, lines 31-32).
7. With respect to claim 21 and 22, Carlier further teaches “from 0 to 1.0 part by weight of a nucleating agent chosen from synthetic Fischer-Tropsch or polyolefin waxes” (column 4, lines 35-36).
8. With respect to claim 23, Carlier further teaches “the beads of expandable styrene polymer may have a diameter of 0.2 to 3.0 mm” (column 5, lines 4-5).
9. With respect to claim 24, Carlier teaches “the expanded beads generally have a bulk density of 7 to 50 kg/m<sup>3</sup>” (column 11, lines 38-39).

***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

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the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

12. Claims 15 and 18-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berghmans (US 6538042) (already of record).

13. With respect to claim 15, Berghmans teaches "porous polyvinylarene particles having a certain pore structure" (claim 1) "which porous particles contain a nucleating agent and 2.0% by weight or less, based on the amount of polyvinylarene, of a volatile organic blowing agent and which porous particles have a volume increase that is from about 1.5 to less than 3 times compared to the volume of said unexpanded particles" (claim 1) and "which have an apparent density  $d_0$  of 530 to 150 kg/m<sup>3</sup>" (claim 2).

Berghmans further teaches that "the vinylarene comprised in the porous polymer particles of the present invention consist preferably mainly of styrene" (column 5, lines 59-60) and that the particles may also include "plasticizers such as white oil" (column 6, line 23). Furthermore the amount of plasticizer used in Example 1 is 0.25% based on the weight of styrene used (column 8, line 22).

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention that Berghmans as a whole teaches pre-expanded polystyrene beads that fall with in the claimed ranges.

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14. With respect to claim 18, Berghmans further teaches “volatile organic blowing agents are well known in the art and are typically  $C_2$ - $C_6$  aliphatic organic blowing agents, such as propane, butane, pentane” (column 3, lines 42-44).

15. With respect to claim 19 and 20, Berghmans teaches “2.0% by weight or less, based on the amount of polyvinylarene, of a volatile organic blowing agent” (claim 1).

16. With respect to claim 21, Berghmans teaches “plasticizers such as white oil” (column 6, line 23).

17. With respect to claim 22, the amount of plasticizer used in Example 1 of Berghmans is 0.25% based on the weight of styrene used (column 8, line 22).

18. With respect to claim 23, Berghmans further teaches “the expandable polyvinylarene particles suitable have an average particle size of 0.2-3.0 mm” (column 5, lines 35-36). Since the pre-expanded particles taught by Berghmans have only increased “about 1.5 to less than 3 times compared to the volume of said unexpanded particles” (claim 1) it would have been obvious to one of ordinary skill in the art at the time of the invention that the pre-expanded particle range would fall within the range of the instant claim.

19. With respect to claim 24, Berghmans teaches “an apparent density  $d_o$  of 530 to 150 kg/m<sup>3</sup>” (claim 2).

20. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berghmans (US 6538042) as applied to claim 15 above, and further in view of Paleja (US 5686497) (already of record).

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21. With respect to claim 17, Berghmans does not teach the molecular weight range of the styrene polymer to be used.

In the same field of endeavor, expandable styrene polymers, Paleja teaches "a regular grade polymer, having a weight average molecular weight (Mw) in the range of 130,000 to 180,000 but may also be a grade having an Mw in excess of 180,000, say up to 500,000" (column 2, lines 42-45) for the purpose of adjusting the strength of the material. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the particle taught by Berghmans by using the styrene polymers taught by Paleja for the purpose of adjusting the strength of the particles.

### ***Response to Arguments***

22. Applicant's arguments with respect to the merits of the previous rejection of claims 15 and 17-24 have been considered but are moot in view of the new ground(s) of rejection.

23. Applicant argues that Berghmans does not teach pre-expanded beads having both the instantly claimed bulk density and blowing agent composition. Examiner disagrees based on the application of Berghmans above. Applicant's arguments are further moot because of the new grounds of rejection over Carlier (as above).

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALISON HINDENLANG whose telephone number is

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(571) 270-7001. The examiner can normally be reached on Monday to Thursday 7:30 - 5 pm; Every other Friday 7:30 - 4 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Philip Tucker can be reached on 571-272-1095. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ALH

/Philip C Tucker/

Supervisory Patent Examiner, Art Unit 1791